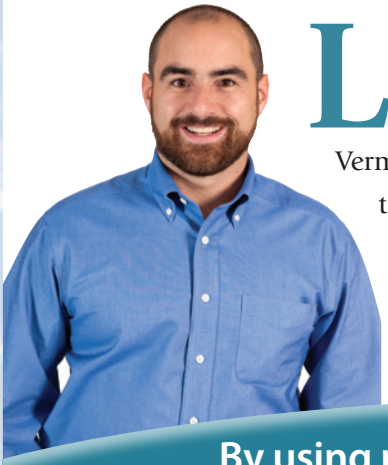
CLIMATE ADAPTATION STORY:

Using Legal Tools to Protect Lakes and Rivers from Climate Impacts

Rob Friesel, http://www.flickr.com/photos/found_drama/306258116/



Lake Champlain has a pollution problem. The lake—situated between the Green Mountains of Vermont and the Adirondack Mountains of New York—suffers from problematic blue-green algae blooms (also known as "pond scum"). When environmental conditions are just right—warm, slow-moving water enriched with nutrients like phosphorous or nitrogen—blue-green algae can grow fast, creating scum layers or floating mats. These blooms, in addition to being unsightly, are dangerous to human, fish, and wildlife health. In Lake Champlain, the primary culprit causing these massive blooms is excess phosphorous.

Anthony Iarrapino, Staff Attorney at Conservation Law Foundation, Vermont

By using precipitation numbers that were already 10 years old and ignoring long-term trends in precipitation and storminess, the 2002 Pollutant Load was likely to grossly underestimate the amount of non-point source pollution.

ADAPTATION STRATEGY

■ *System*: Large inland lake ■ *Challenge*: Ph
warmer temperatures, weak Total Maximum Daily Load (Pollutant Load) ■
■ *Outcome*: Stronger regulation that

Pollutants such as Phosphorous enter a lake from two types of sources: point sources and non-point sources. Point sources are clearly identifiable, like a pipe that flows directly into the lake such as wastewater treatment plants, municipal storm drainpipes, and storm drains from industrial sites. Pollution from non-point sources may be deposited into lakes, rivers, and streams by wind or rain, or may be carried by rainfall or snowmelt moving diffusely over the ground and reaching water bodies that way. In Lake Champlain, excess phosphorous come mainly from non-point sources like farm field, lawns, eroding stream banks, and poorly maintained back roads.

Louis Porter, Conservation Law Foundation's Lake Champlain Lakekeeper

No swimming today. The toxic blue-green algae bloom in Lake Champlain is spurred by phosphorus pollution. A stronger Pollutant Load level that takes into account changing climate conditions will reduce the frequency of these blooms.

"The evidence of that excessive pollution is clear to anyone who tries to use the worst-hit parts of the lake during the summer. The summer of 2011 was particularly bad. Numerous outbreaks of toxic algae blooms…were found up and down parts of the lake...[in places] that have historically not been susceptible to algae blooms," says Anthony Iarrapino, a staff attorney with the Conservation Law Foundation in Vermont.

People have been combating the Lake Champlain pollution problem for a number of years. In 2002, the states of Vermont and New York jointly developed a Total Maximum Daily Load for the lake, which was approved by the U.S. Environmental Protection Agency (EPA). The Total Maximum Daily Load (Pollutant Load) determines the total amount of a pollutant—in this case, phosphorous—that can be put into the lake without making it unsafe for people, fish, birds, and other wildlife. The Pollutant Load calculation includes pollutants from both point and non-point sources, but while point source pollution amounts are relatively easy to determine, non-point source pollution is not.

In order to calculate the contribution of non-point source pollutants, the EPA uses watershed models based on how much precipitation (rain and snow) falls in a single year. In the case of Lake Champlain, 1991 was chosen as the representative year and used to determine the total non-point source pollutant amount. However, since 1991 there has been a trend toward wetter years overall and more intense storms that produce higher flows. More precipitation and higher flows mean more polluted runoff, whether it's through erosion from a farm field with layers of fertilizer or from a construction site. In a nutshell, by using precipitation numbers that were already 10 years old and ignoring long-term trends in precipitation and storminess, the 2002 Pollutant Load was likely to grossly underestimate the amount of non-point source pollution.

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osphorus pollution, increased toxic algae from

■ *Creative Solution:* Use the law to push EPA for stronger regulations ■

t takes into account climate change ■

Lake Champlain Community Sailing Center

A cared for lake makes for an enjoyable summer day.

"[W]e became very concerned that the…targets were understated and as a result that the whole effort to reduce pollution was calibrated to fail. So even if we had achieved the reductions we were hoping for, we would look at the lake and we would see a lake that is still so heavily polluted…" says Iarrapino.

Based on these concerns, Iarrapino determined the best strategy was to appeal the Pollutant Load. From a legal standpoint, it's tricky to repeal a decision that was made in the past. Even though Iarrapino found evidence of the EPA acknowledging that climate change should be integrated into its regulatory programs, he needed to find evidence demonstrating that the EPA knew or should have known about climate change impacts back in 2002. As he dug deeper, he found that the U.S. government had been funding climate change research since at least the 1980s.

In January 2011, the EPA decided to overturn the Vermont portion of the Lake Champlain Pollutant Load.

In 2008, the Conservation Law Foundation felt they had enough evidence and filed a lawsuit asking the EPA to rescind their approval of the 2002 Pollutant Load. In January 2011, the EPA decided to overturn the Vermont portion of the Lake Champlain Pollutant Load.

"One of the reasons they (EPA) decided to reverse their decision was the effects of climate change on lake water quality," says Julie Moore, former director of Vermont's Clean and Clear Program.

The EPA also kicked off a nationwide study of the relationship between potential climatic changes and increasing non-point source pollution. They plan to look at how different pollution control techniques (e.g., conventional practices vs. green infrastructure) work under changing climatic conditions. Lake Champlain will be included in the nationwide study and the results will be factored into the new Pollutant Load.

Currently, the Vermont Agency of Natural Resources and the EPA are working on an extensive community outreach campaign to figure out what's happening in terms of actual on-the-ground pollution control, what ideas people have to do more, and discuss what's working and what's not. Iarrapino and others hope the result of all this discussion and research will be a new Pollutant Load that is truly comprehensive—one that gets the region on a path toward controlling pollution and a clean and healthy Lake Champlain far into the future.

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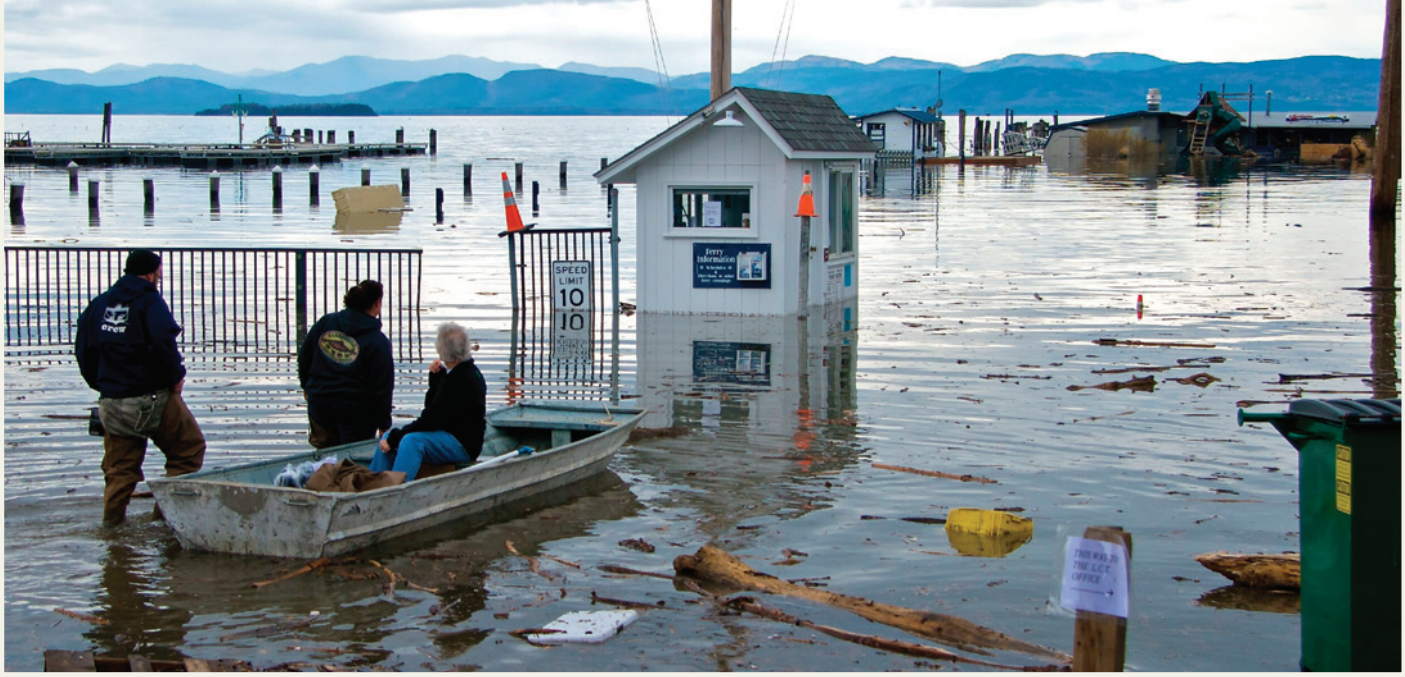

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Excessive rain in the spring of 2011 caused flooding around Lake Champlain.

Lessons Learned:

1) *Identify the right target.* The ultimate goal of the Conservation Law Foundation was not to change laws and regulations. Instead, it was to reduce phosphorus pollution into Lake Champlain, building its resilience against the impacts of climate change. The Conservation Law Foundation identified replacing the regulation as the most effective strategy to accomplish this.

2) *Use the Legal System.* A lawsuit may seem like an extreme way to get change, but if regulations are being violated, it is often the best way to get the government to reevaluate and change their standards.

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